

REMARKS

This Amendment is submitted in response to the Office Action dated December 20, 2007. Claims 36 and 38-51 are pending in the application. In the Office Action, claims 39-46 and 51 are rejected under 35 U.S.C. §102; and claims 36 and 38-51 are rejected under 35 U.S.C. §103. Claims 39-46 and 51 are amended herein. The Commissioner is hereby authorized to charge deposit account 02-1818 for any fees which are due and owing. Applicants respectfully submit that the rejections are improper or have been overcome, as set forth in detail below.

In the Office Action, Claims 39-46 and 51 are rejected under 35 U.S.C. §102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over U.S. Patent Application Publication No. 2003/0227253 to Seo et al. ("Seo"); Claims 39, 41-43, 45 and 51 are rejected under 35 U.S.C. §102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over PCT Publication No. WO02/084631 as evidenced by corresponding U.S. Patent No. 6,872,635 to Hayashi et al. ("Hayashi"); Claims 36, 38-39, 41-43 and 47-51 are rejected under 35 U.S.C. §103(a) as being unpatentable over PCT Publication No. WO02/084631 as evidenced by the corresponding Hyashi reference, and in view of U.S. Patent No. 5,426,342 to Nakamura et al. ("Nakamura"); and Claims 40 and 44-46 are rejected under 35 U.S.C. §103(a) as being unpatentable over PCT Publication No. WO02/084631 as evidenced by the corresponding Hyashi reference, and in view of Nakamura and Seo. Applicants believe that the anticipation and obviousness rejections are improper or have been overcome, and should be withdrawn as described in detail below.

Of the rejected claims, Claims 36, 39 and 41. Claim 36 was previously amended to recite, at least in part, *a device transfer method* including: embedding one-side devices into an uncured pressure sensitive adhesive layer provided on a second substrate; embedding other-side devices arranged on a first substrate into the uncured pressure sensitive adhesive layer provided on the second substrate wherein the other-side devices and one-side devices are light emitting diodes having different characteristics; and stripping the other-side devices from the first substrate thereby holding the other-side devices in an embedded state in the uncured pressure sensitive adhesive layer.

Independent Claims 39 and 41 have been amended to recite, at least in part, *a method of manufacturing a display apparatus*. Moreover, the method of Claim 39 recites, at least in part,

embedding devices arranged on a first substrate into a pressure sensitive adhesive layer provided on a second substrate wherein the devices are light emitting diodes, the pressure sensitive adhesive layer being in an uncured state, and *stripping the devices from the first substrate thereby holding the devices in an embedded and uncured state in the pressure sensitive adhesive layer.*

Also, the method of Claim 41 recites, at least in part, embedding one-side devices arranged on a first substrate into a pressure sensitive adhesive layer provided on a second substrate, the pressure sensitive adhesive layer being in an uncured state; *stripping the one-side devices from the first substrate thereby holding the one-side devices in an embedded and uncured state in the pressure sensitive adhesive layer*; further embedding other-side devices arranged on the first substrate into the pressure sensitive adhesive layer, the pressure sensitive layer being remaining in an uncured state; *stripping the other-side devices from the first substrate thereby holding the other-side devices in an embedded and uncured state in the pressure sensitive adhesive layer.*

In the presently claimed inventions, since the devices 3 are stripped from the temporary adhesive layer 2 before hardening (curing) the pressure sensitive layer 5, the force required for separating the temporary holding substrate 1 and the transfer substrate 4 away from each other is reduced, and any damage to the temporary holding substrate 1 or the transfer substrate 4 at the time of stripping the devices 3 from the temporary adhesion layer 2 is reduced, resulting in an improved overall structural quality of the finished display apparatus. (See, Applicants Published Application No. 2005/0233504, paragraph 49). Particularly, in the case of manufacturing a display apparatus having a large screen, it is necessary to enlarge the area of the transfer substrate 4, so that lowering the possibility of damaging the transfer substrate 4 or the temporary holding substrate 1 should realize a reduction in the manufacturing cost and improved product quality and enable manufacture of a larger sized display apparatus. (See, Applicants Published Application No. 2005/0233504, paragraph 49).

In contrast, the cited art, even if properly combinable, fails to disclose or to suggest the claimed invention. For example, Seo does not disclose or suggest *a method of manufacturing a display apparatus* where the display is formed by embedding devices that are on a first substrate to an uncured pressure sensitive adhesive layer on a second substrate, stripping the devices from

the first substrate where the pressure sensitive adhesive layer remains in an uncured state, and then curing the pressure sensitive adhesive layer, as recited in amended independent Claims 39 and 41.

Moreover, Hayashi does not disclose or suggest stripping the devices or other-side devices from the substrate thereby holding the other-side devices in an embedded state in the uncured pressure sensitive adhesive layer. Hayashi discloses with regard to Figs. 2A-2D: an adhesive layer 2 is formed on a base substrate 1, and a plurality of devices 3 are formed in array on the adhesive layer 2. A temporarily holding substrate 4 is placed opposite to the base substrate 1. (See, Hayashi, Figs. 2A-2D). Only desired devices 3a are transferred from the base substrate 1 to the temporarily holding substrate 4 by using an adhesive layer portions 5 formed on the temporarily holding substrate 4. (See, Hayashi, Figs. 2A-2D). The devices 3a are left as transferred on the adhesive layer portions 5. (See, Hayashi, Figs. 2A-2D). The devices 3a are placed opposite to a transfer substrate 6 and transferred. (See, Hayashi, Figs. 2A-2D). After the temporarily holding substrate 4 is superimposed to the transfer substrate 6, the adhesive layer 7 is irradiated with laser beams from back surface side of the transfer substrate 6, to be softened. (See, Hayashi, col. 11, lines 41-65). The irradiation of the laser beams is then stopped, and the heated region H is cooled to be cured, to fix the devices 3a to the transfer substrate 6 via the adhesive layer 7. (See, Hayashi, col. 11, lines 41-65). After the devices 3a are fixed to the transfer substrate 6 via the adhesive layer 7 by selective heating due to laser irradiation, softening, and curing due to cooling, the temporarily holding substrate 4 is peeling from the transfer substrate 6. (See, Hayashi, col. 12, lines 45-50). Thus, we disagree the Examiner's comments: "Hayashi et al. discloses stripping the first substrate prior to cooling the adhesive to room temperature, when the adhesive is cured completely." (See, Office Action, P6).

In the presently claimed invention, the devices embedded into the uncured pressure sensitive adhesive layer are stripped from the substrate in the uncured pressure sensitive adhesive layer. On the other hand, in Hayashi, the devices 3a are fixed to the transfer substrate 6, the adhesive layer 7 are cured, and the temporarily holding substrate 4 is peeling from the transfer substrate 6. Thus, the device transfer method is different between Hayashi and the presently claimed invention.

For at least the reasons above, Applicants believe that one skilled in the art would consider Hayashi and Seo distinguishable from the claimed invention for at least these reasons.


Nakamura is relied on for the alleged disclosure of a heat sensitive and pressure sensitive adhesive layer and thus does not cure the deficiencies of Hayashi or Seo even assuming that the references are properly combinable, as discussed above.

Accordingly, Applicants believe that the anticipation and obviousness rejections should be withdrawn for at least these reasons, and further respectfully submit that the present application is in condition for allowance and earnestly solicit reconsideration of same.

Respectfully submitted,

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Dated: March 18, 2008